## REMARKS

Claims 1-3, 7, 8, 13, 15, 17, 18, 20-23, 25, 26, and 29 are currently pending in the subject application and are presently under consideration. Claims 1, 8, 15, 17, 18, 20, 21, and 26 have been amended as shown at pages 2-7 of the Reply. No new matter has been added.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

### I. Rejection of Claims 15 and 17 Under 35 U.S.C. §101

Claims 15 and 17 stand rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Claims 15 and 17 have been amended as suggested by the Examiner. In this regard, the addition of the term "non-transitory" herein is to be understood to have removed only propagating transitory signals per se from claim scope and does not relinquish rights to all standard computer-readable media that are not only propagating transitory signals per se. In other words, the meaning of "non-transitory computer-readable medium" should be construed to exclude only those types of transitory computer-readable media, which were found in *In re Nuijten*, to fall outside the scope of patentable subject matter under 35 U.S.C. §101. As such, withdrawal of this rejection is respectfully requested.

### II. Rejection of Claims 1, 15, 18, and 21 Under 35 U.S.C. §103(a)

Claims 1, 15, 18, and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kadaba *et al.* (US 2002/0172217 A1) in view of Earnshaw *et al.* (US 2004/0071115 A1). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Kadaba *et al.* and Earnshaw *et al.*, alone or in combination, do not disclose each and every feature of the subject claims.

> A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *KSR v. Teleflex*, 550 U.S. 398, 127 S. Ct. 1727 (2007) citing Graham v. John Deere Co. of Kansas City, 383 U. S. 1, 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (*quoting Monroe Auto Equipment*

> *Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964))).

Independent claim 1 recites, in part, *generating* ***first data to be transmitted from a first transmission terminal***;

***encoding the first data with a long code at the first transmission terminal*** *to produce a first long-encoded signal;*

*applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal; and*

*transmitting the first long-encoded, polarized signal from the first transmission terminal to at least one destination,*

*wherein the* ***encoding the first data with the long code at the first transmission terminal comprises utilizing an identical long code also employed by a second transmission terminal transmitting signals having an orthogonal polarization to the first polarization***.

The Office Action dated October 19, 2011 concedes that Kadaba *et al.* does not disclose all of the elements of claim 1 and cites Earnshaw *et al.* to make up for the deficiencies of Kadaba *et al.*. In particular, the Office Action asserts that "*Fig. 4; paragraphs 33-34: user D1 and user D2 have different polarizations P 1 and P2, respectively and both signals associated with user D1 and D2 are uses the same code CA*". Paragraphs [0033-35] of Earnshaw *et al.* state:

> 0033] If the active terminals are to be divided into two or more different polarization groups with each group corresponding to a distinct SCDMA code set, this can be accomplished by classifying the user polarizations into different polarization groups based on the projections of their polarization vectors onto each other. Terminals with similar polarizations would be placed into the same polarization group and assigned orthogonal codes from within the same SCDMA code set, thus eliminating the mutual interference. Different polarization groups would be positioned such that the interference generated between distinct groups would be minimized. FIG. 4 shows a diagram similar to that shown in FIG. 1 except that the present invention has been utilized to create groupings of various user polarizations.
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> [0034] In FIG. 4, a process with data streams from eight sample users $D_1^{P1}$, $D_2^{P2}$, $D_3^{P1}$, $D_4^{P2}$, $D_5^{P3}$, $D_6^{P4}$, $D_7^{P3}$, and $D_8^{P4}$ is shown. Users $D_1^{P1}$ and $D_3^{P1}$ have similar polarizations and are placed into the same polarization group denoted by the superscript P1. Other users are grouped similarly into remaining polarization groups P2 through P4. **Polarization groups P1 and P2 are assumed to be non-orthogonal to each other**, and P3 and P4 are also

assumed to be non-orthogonal. **However, polarization groups P1 and P2 are both orthogonal to both P3 and P4, and vice versa**. Each data stream $D_1^{P1}$, $D_2^{P2}$, $D_3^{P1}$, $D_4^{P2}$, $D_5^{P3}$, $D_6^{P4}$, $D_7^{P3}$, and $D_8^{P4}$ is spread by a respective OVSF code $S_\alpha$, $S_\beta$, $S_{102}$, $S_\square$, $S_\alpha$, $S_\square$, $S_\chi$, and $S_\delta$. Each data stream is then further scrambled by a respective PN code $C_A$, $C_A$, $C_A$, $C_A$, $C_B$, $C_B$, $C_B$, $C_B$, before being transmitted. Stated otherwise, each user $D_1^{P1}$, $D_2^{P2}$, $D_3^{P1}$, $D_4^{P2}$, $D_5^{P3}$, $D_6^{P4}$, $D_7^{P3}$, and $D_8^{P4}$ represents a simultaneously active terminal each assigned a respective OVSF spreading code and SCDMA code set combination ($S_\alpha$, $C_A$), ($S_\beta$, $C_A$), ($S_\chi$) $C_A$), ($S_\square$, $C_A$), ($S_\alpha$, $C_B$), ($S_\square$, $C_B$), ($S_\chi$, $C_B$), and ($S_\delta$, $C_B$).

[0035] **With continued reference to FIG. 4, the users $D_1^{P1}$ and $D_3^{P1}$ share the same SCDMA code set (as defined by $C_A$) due to the fact that they also share the same polarization grouping P1 and are thus non-orthogonal to each other. Users $D_2^{P2}$ and $D_4^{P2}$ are also placed into the $C_A$ code set since the polarization grouping P2 is non-orthogonal to P1**. Hence, orthogonality between users must be obtained in this instance through the use of orthogonal spreading codes, and all four users ($D_1^{P1}$, $D_2^{P2}$, $D_3^{P1}$, $D_4^{P2}$) have been assigned to the same SCDMA code set. **The remaining four users ($D_5^{P3}$, $D_6^{P4}$, $D_7^{P3}$, and $D_8^{P4}$) are orthogonal to the first four users in a polarization sense since polarization groupings P3 and P4 have been assumed to be orthogonal to P1 and P2. Consequently, it is not necessary to achieve orthogonality via synchronous OVSF spreading codes, and the second set of four users may be assigned to a different SCDMA code set ($C_B$)** as shown in FIG. 4. Note that the same OVSF spreading codes may be re-used within the two different SCDMA code sets. While polarization is illustrated, orthogonality may similarly be otherwise attained via orthogonal grouping based upon spatial diversity (e.g., via beam-forming, smart antennae, and the like).
(emphasis added)

It is clear that users $D_1$ and $D_2$ belong to polarization groups P1 and P2 respectively, which are not orthogonal to each other and belong to the same code set $C_A$. Furthermore, users in polarization groups P3 and P4 which are orthogonal to polarization groups P1 and P2 belong to code set $C_B$. Hence, contrary to assertions in the Office Action, Earnshaw *et al.* does not disclose or suggest ***encoding the first data with the long code at the first transmission terminal comprises utilizing an identical long code also employed by a second transmission terminal transmitting signals having an orthogonal polarization to the first polarization*** as recited in claim 1. In fact, Earnshaw *et al.* disclose the opposite, and thus teaches away from the elements recited in claim 1. Therefore, the combination of Kadaba *et al.* and Earnshaw *et al.* fails to disclose or suggest all elements as recited in claim 1.

Similarly, independent claim 15 recites, in part, "*...encoding first data with a long code to produce a first long-encoded signal...wherein* ***the encoding the first data with the long code comprises utilizing an identical long code employed by a disparate computing device to transmit, with an orthogonal polarization from the first polarization, second data***." Independent claim 18 recites, in part, "*...a long code generator configured to generate a long code,* ***wherein the long code generated is identical to a second long code employed by a disparate transmission terminal transmitting signals having orthogonal polarization to a polarization utilized by the transmission terminal***..." Further, independent claim 21 recites, in part, "*...means for encoding* ***first data, generated at a first transmission terminal****, with a long code to produce a first long-encoded signal...wherein the means for* ***encoding the first data further comprises means for utilizing an identical long code to that employed by a second transmission terminal configured to transmit signals having an orthogonal polarization to the first polarization***." For the reasons stated above, Kadaba *et al.* and Earnshaw *et al.* also fail to teach or suggest such aspects as similarly recited in independent claims 15, 18, and 21.

In view of at least the foregoing, it is respectfully submitted that Kadaba *et al.* and Earnshaw *et al.*, alone or in combination, do not teach or suggest all elements as recited in independent claims 1, 15, 18, and 21. Accordingly, withdrawal of this rejection is respectfully requested.

## XII. Rejection of Claims 2, 3, 7, 8, 17, 20, 22, 23, 25, and 26 Under 35 U.S.C. §103(a)

Claims 2, 3, 7, 8, 17, 20, 22, 23, 25, and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kadaba *et al.* (US 2002/0172217 A1) in view of Earnshaw *et al.* (US 2004/0071115 A1) as applied to claims 1 and 21 above, and further in view of Proctor, Jr. *et al.* (US 7,911,993). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Kadaba *et al.*, Earnshaw *et al.*, and Proctor, Jr. *et al.*, alone or in combination, do not disclose each and every feature of the subject claims.

Claims 2, 3, 7, 22, 23, and 25 depend from independent claims 1 and 21 respectively. As noted *supra*, Kadaba *et al.* and Earnshaw *et al.*, do not disclose or suggest each and every feature as recited in these independent claims, and Proctor, Jr. *et al.* fails to make up for the aforementioned deficiencies of these cited references. Proctor, Jr. *et al.* discloses "Method and apparatus for base stations and subscriber units allows soft handoff of a CDMA reverse link

utilizing an orthogonal channel structure. Subscriber units transmit an orthogonally coded signal over a reverse link to the base stations. A given base station provides timing control of the timing offset of the reverse link signal. Based on at least one criterion, an alignment controller determines that the given base station should hand off timing control to another base station, and a soft handoff process ensues." (See Abstract) Proctor, Jr. *et al.* is silent regarding *generating* ***first data to be transmitted from a first transmission terminal; encoding the first data with a long code at the first transmission terminal*** *to produce a first long-encoded signal; applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal; and transmitting the first long-encoded, polarized signal from the first transmission terminal to at least one destination, wherein the* ***encoding the first data with the long code at the first transmission terminal comprises utilizing an identical long code also employed by a second transmission terminal transmitting signals having an orthogonal polarization to the first polarization*** as recited in claim 1, and similarly recited in claim 21.

Independent claim 8 recites *a method, comprising: receiving a signal, via an antenna; dividing the signal received into a first signal,* ***transmitted from a first transmission terminal, and a second signal, transmitted from a second transmission terminal,*** *wherein* ***the first signal and the second signal have orthogonal polarizations with respect to one another; applying an identical long code to the first signal and the second signal to generate a first decoded signal and a second decoded signal, respectively****; applying a first orthogonal code to the first decoded signal to produce a first output signal corresponding to the first signal transmitted from the first transmission terminal; and applying a second orthogonal code to the second decoded signal to produce a second output signal corresponding to the second signal transmitted from the second transmission terminal.*" Similarly, independent claim 17 recites, in part, "*…dividing the signal received into* ***a first signal, which is transmitted from a first transmission terminal, and a second signal, which is transmitted from a second transmission terminal, wherein the first signal and the second signal have orthogonal polarizations with respect to one another; applying an identical long code to the first signal and the second signal to generate a first decoded signal and a second decoded signal, respectively****...*" Further, independent claim 20 recites "*an antenna configured to receive* ***a signal that includes a first signal transmitted from a first transmission terminal and a second signal transmitted from a second transmission terminal, wherein the first signal and the second signal have orthogonal polarizations with***

***respect to one another****...a first mixer configured to* ***apply a long code to the first signal to produce a first decoded signal; a second mixer configured to apply the long code, identical to the long code applied by the first mixer, to the second signal to produce a second decoded signal****...*" and independent claim 26 recites, in part, "*means for separating the signal received into* ***a first signal, which is transmitted by a first terminal, and a second signal, which is transmitted by a second terminal, wherein the first signal and the second terminal have orthogonal polarizations with respect to one another****...means for* ***applying an identical long code to the first signal and the second signal to produce a first decoded signal and a second decoded signal, respectively****...*"

As discussed above and conceded in the Office Action, Kadaba *et al.* fails to teach or suggest applying an identical long code on two separate signals having orthogonal polarizations and transmitted by disparate terminals. Moreover, as noted *supra*, Earnshaw *et al.*, and Proctor, Jr. *et al.* likewise fail to make up for the deficiencies of Kadaba *et al.*. Accordingly, it is clear that the combination of Kadaba *et al.*, Earnshaw *et al.*, and Proctor, Jr. *et al.* also fail to disclose or suggest all elements of independent claims 8, 17, 20, and 26 related to receiving transmitted signals as recited in independent claims 1, 15, 18, and 21.

In view of at least the foregoing discussion, applicant's representative respectfully submits that Kadaba *et al.*, Earnshaw *et al.*, and Proctor, Jr. *et al.*, alone or in combination, fail to disclose or suggest all elements as recited in independent claim 1, 8, 15, 17, 18, 20, 21, and 26 (and claims 2, 3, 7, 22, 23, and 25 that respectively depend therefrom), and thus fails to make obvious the subject claims. Accordingly, withdrawal of this rejection is respectfully requested.

## III. Rejection of Claims 13 and 29 Under 35 U.S.C. §103(a)

Claims 13 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Earnshaw *et al.* (US 2004/0071115 A1) in view of Kadaba *et al.* (US 2002/0172217 A1) and Proctor Jr. *et al.* (US 7,911,993) as applied to claims 8 and 26 above, and further in view of Iwamoto *et al.* (US 2005/0213644 A1). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Kadaba *et al.*, Earnshaw *et al.*, Proctor, Jr. *et al.*, and Iwamoto *et al.*, alone or in combination, do not disclose each and every feature of the subject claims.

Claims 13 and 29 depend from independent claims 8 and 26 respectively. As noted *supra*, Kadaba *et al*., Earnshaw *et al*., and Proctor, Jr. *et al*. do not disclose or suggest each and every feature as recited in these independent claims, and Iwamoto *et al*. fails to make up for the aforementioned deficiencies of these cited references. Iwamoto *et al*. discloses "A search circuit in a CDMA system which has a plurality of base stations respectively employing different carrier frequencies, the search circuit selects one carrier frequency among the different carrier frequencies to perform a cell search of the one carrier frequency." (See Abstract) Iwamoto *et al*. is silent regarding *a method, comprising: receiving a signal, via an antenna; dividing the signal received into a first signal,* ***transmitted from a first transmission terminal, and a second signal, transmitted from a second transmission terminal****, wherein* ***the first signal and the second signal have orthogonal polarizations with respect to one another; applying an identical long code to the first signal and the second signal to generate a first decoded signal and a second decoded signal, respectively****; applying a first orthogonal code to the first decoded signal to produce a first output signal corresponding to the first signal transmitted from the first transmission terminal; and applying a second orthogonal code to the second decoded signal to produce a second output signal corresponding to the second signal transmitted from the second transmission terminal* as recited in claim 8, and similarly recited in claim 26.

In view of at least the foregoing discussion, applicant's representative respectfully submits that Kadaba *et al*., Earnshaw *et al*., Proctor, Jr. *et al*., and Iwamoto *et al*., alone or in combination, fail to disclose or suggest all elements as recited in independent claim 8 and 26 (and claims 13 and 29 that respectively depend therefrom), and thus fails to make obvious the subject claims. Accordingly, withdrawal of this rejection is respectfully requested.

## CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [QUALP825US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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